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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,084	09/20/2001	Elbert Lee McKague JR.	019843.0206	5105

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EXAMINER

ROSSI, JESSICA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/961,084

Applicant(s)

MCKAGUE, ELBERT LEE

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/5/04, Amendment.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,4-19,24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment dated 4/5/04. Claims 1-2 and 4-24 are pending.
2. The 112 1st and 2nd paragraph rejection set forth in paragraphs 5-8 of the previous office action have been withdrawn in light of the present amendment to claims 5 and 13.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-2, 4-5, and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mead (US 4675061; of record) in view of the collective teachings of Fairbanks (US 6106646; of record) and Campbell et al. (US 5827383; of record), as set forth in paragraph 10 of the previous office action.

With respect to claim 1, Mead is directed to making a composite structure having utility in various industries (i.e. aircraft; column 1, lines 15-16). The reference teaches positioning a plurality of forming elements 22 on a skin panel 12 formed from an uncured resin-impregnated layer (column 2, lines 65-68) in a predetermined configuration (abstract), disposing a stiffening panel 14 formed from an uncured resin-impregnated layer (column 2, lines 65-68) outwardly from the forming elements (Figure 3), and curing the skin panel and stiffening panel to bond the same at their contact regions (column 2, lines 25-30).

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The reference is silent as to partially curing the skin panel and stiffening panel to create contact regions between the same and coupling the skin panel and stiffening panel with a plurality of fasteners.

It is known in the art to make a composite structure useable in the aircraft industry (column 1, lines 28-35) by stacking a plurality of **pre-preg** plies (**column 3, lines 26-29**), debulking the stacked pre-preg plies using heat and pressure without causing final curing of the plies (column 3, lines 35-60), inserting fasteners (i.e. z-pins) through the debulked pre-preg plies (column 4, lines 56-65), and final curing the plies to bond the same (column 5, lines 3-7), as taught by Fairbanks.

Since the skilled artisan would have readily appreciated that pre-preg materials are notoriously well known in the art as being impregnated with a resin which is then partially cured to a B-stage (see US 5403537, column 1, lines 39-42 and "Handbook of Composites", p. 771), the skilled artisan would have appreciated that Fairbanks teaches inserting fasteners into partially-cured plies. Fairbanks acknowledges composite materials being weaker in the z-axis direction and therefore inserts fasteners through the layers in this direction to prevent delamination of the layers (column 1, lines 43-45).

It is also known in the art to make a composite structure useable in the aircraft industry (column 1, lines 13-16) where a joint formed between **pre-preg** plies is reinforced by inserting pins through the plies in the z-axis direction (Figure 5; column 2, line 66 – column 3, line 5; column 4, lines 40-41), followed by final curing of the plies (column 3, lines 1-5), as taught by Campbell.

Since the skilled artisan would have readily appreciated that pre-preg materials are notoriously well known in the art as being impregnated with a resin which is then

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partially cured to a B-stage (see US 5403537, column 1, lines 39-42 and "Handbook of Composites", p. 771), the skilled artisan would have appreciated that Campbell teaches inserting fasteners into partially-cured plies.

Therefore, it would have been obvious to the skilled artisan at the time the invention was made to partially cure the skin panel and stiffening panel of Mead to create contact regions between the same and couple the panels with a plurality of fasteners after partial-curing but before final curing because such is known in the art, as taught by the collective teachings of Fairbanks and Campbell, wherein the fasteners can be easily inserted due to the partially-cured (= not fully-cured) state of the layers and delamination of the composite can be prevented due to the presence of the fasteners (Fairbanks; column 1, lines 43-45).

Regarding claims 2, 4-5, and 8, please refer to paragraph 10 of the previous office action.

5. Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mead and the collective teachings of Fairbanks and Campbell et al. as applied to claim 1 above, and further in view of the collective teachings of Sharp (US 3669821; of record) and Wiens et al. (US 4368674; of record), as set forth in paragraph 11 of the previous office action.

6. Claims 7 and 10-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mead and the collective teachings of Fairbanks and Campbell et al. as applied to claim 1 above, and further in view of Effing et al. (US 5238725; of record), as set forth in paragraph 12 of the previous office action.

7. Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mead, the collective teachings of Fairbanks and Campbell et al., and Effing as applied to claim 10 above, and further in view of the collective teachings of Sharp and Wiens et al., as set forth in paragraph 13 of the previous office action.

8. Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mead and the collective teachings of Fairbanks and Campbell et al. as applied to claim 1 above, and further in view of the collective teachings of Bleasdale (US 3419457; of record) and Yasui (US 5904992; of record), as set forth in paragraph 14 of the previous office action.

9. Claims 15-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mead in view of the collective teachings of Sharp and Davis (US 4865788; of record), and the collective teachings of Fairbanks and Campbell et al., as set forth in paragraph 15 of the previous office action.

10. Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mead, the collective teachings of Sharp and Davis, and the collective teachings of Fairbanks and Campbell et al. as applied to claim 15 above, and further in view of Bleasdale and Yasui, as set forth in paragraph 16 of the previous office action.

11. Claim 24 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mead, the collective teachings of Sharp and Davis, and the collective teachings of Fairbanks and Campbell et al. as applied to claim 15 above, and further in view of Effing, as set forth in paragraph 17 of the previous office action.

Response to Arguments

12. Applicant's arguments filed 4/5/04 have been fully considered but they are not persuasive.

13. On page 9 of the arguments, Applicant argues that Mead fails to teach or suggest inserting fasteners and therefore the skilled artisan would not be motivated to do so.

The examiner respectfully points out that just because a reference does not expressly teach and/or suggest a limitation does not mean that it cannot be modified to render such a limitation obvious, especially when ample motivation is provided in secondary references. Therefore, Applicant is invited to reread the rejection of claim 1 as set forth in paragraph 4 above where the teachings of Fairbanks and Campbell provide ample motivation to partially cure the layers of Mead and insert fasteners into the layers.

As for Applicant's "hypotheticals" regarding the use of fasteners in the composite of Mead, the Examiner points out that such is mere speculation.

14. On page 9 of the arguments, Applicant argues that the debulking step of Fairbanks does not cause the plies to partially cure and therefore the reference fails to teach such a limitation.

The examiner agrees that partial curing does not take place during the debulking step of Fairbanks. However, partial curing takes place during formation of the pre-preg plies, as explained in paragraph 4 above.

15. On page 9 of the arguments, Applicant argues that pre-preg is not necessarily partial-curing.

The examiner never stated that pre-preg is partial curing. What the examiner asserted was that one skilled in the art would have readily appreciated that all pre-pregs are formed by impregnating material with a resin which is then partially cured to a B-stage, as set forth in paragraph 4 above (note US 5403537 and "Handbook of Composites" were cited to support this assertion).

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16. On pages 9-10 of the arguments, Applicant argues that Campbell even states that pre-preg includes uncured resin by stating that “stiffener member 12 and skin member 10 may be in an uncured resin matrix combined as a prepreg...”

The examiner respectfully points out that Campbell never says that that pre-pregs include uncured resin. What the reference states is that the members can be formed of plies of fiber in an uncured resin matrix or they can be formed of plies of fiber in an uncured resin matrix combined as a pre-preg (column 4, lines 38-41), wherein the skilled artisan would have appreciated that partial curing of the resin is how the plies are combined to form the pre-preg.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

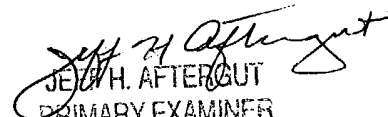
Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **571-272-1223**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jessica L. Rossi
Patent Examiner
Art Unit 1733



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